

## Dietary Patterns and Physical Activity Among New Jersey Adults



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Poor dietary habits and low levels of physical activity are leading causes of morbidity and mortality throughout the United States. Nationally, it has been estimated that approximately 15% of all deaths are related to physical activity patterns and dietary factors<sup>1</sup>. The New Jersey Behavioral Risk Factor Surveillance System (BRFSS) provides an opportunity to estimate directly the prevalence of poor dietary habits and low physical activity levels among adults in New Jersey. To date, the behaviors measured have included leisure time physical activity, dietary fat intake, fruit and vegetable intake, calcium intake, and weight control. (For additional BRFSS results pertaining specifically to Healthy New Jersey 2000 objectives in the areas of diet and physical activity, see reference 2, pp. 53 and 65.)

NOTE: The New Jersey Behavioral Risk Factor Surveillance System is part of the national Behavioral Risk Factor Surveillance System, a telephone survey of adults aged 18 years and over. This survey is designed to monitor modifiable risk factors for chronic diseases and other leading causes of morbidity and death. The survey is a cooperative effort between the national Centers for Disease Control and Prevention (CDC) and all states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands. It has been in existence since 1984. The New Jersey Department of Health and Senior Services has been participating in the survey on a monthly basis since 1991, conducting approximately 125 interviews per month. General design features and limitations of the BRFSS have been discussed elsewhere.<sup>3,4</sup>

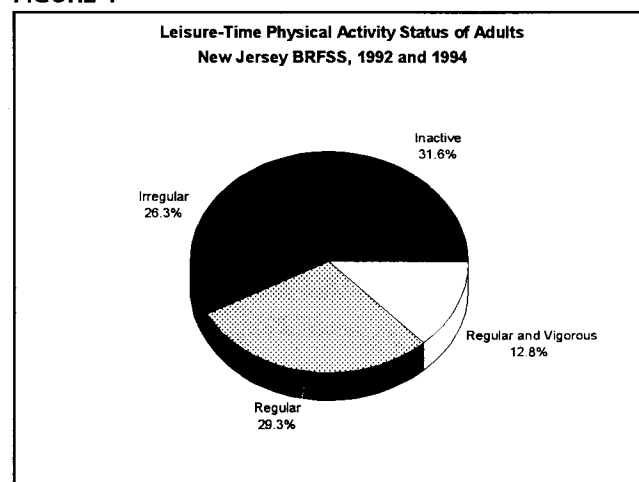
### Leisure-Time Physical Activity

Lack of physical activity has been identified as a risk factor for coronary heart disease, colon cancer, non-insulin dependent diabetes mellitus, hypertension, osteoporosis and osteoporotic fractures, obesity, and symptoms of depression and anxiety, among other health problems<sup>5</sup>. Evidence suggests that there is a dose-response relationship between physical activity and health (i.e., moderate levels of physical activity provide an intermediate level of benefit). Various measures of physical activity corresponding to objectives 1.3 through 1.5 of the national Healthy People 2000 initiative<sup>6</sup> are available from the 1992 and 1994 New Jersey BRFSS.

An estimated one-third of New Jersey's adult population engaged in no leisure-time physical activity during the previous month and slightly more than one-fourth engaged in only irregular activity (defined as any physical activity done for less than 20 minutes or less than three times per week). Only about one-eighth of New Jersey adults engaged

in regular leisure-time activity which could be described as vigorous (requiring the rhythmic contraction of large muscle groups at 50% of functional capacity) (Figure 1). The estimated proportion of adults in New Jersey who were practicing regular and sustained leisure-time physical activity (30 or more minutes of physical activity at any level of intensity 5 or more times per week) on average during a typical month in 1992 or 1994, according to the BRFSS, was only 19.4% (17.8%-21.0%)\*. This value is similar to the median prevalence estimates of 19.7% and 20.2%, respectively, reported for all states participating in the BRFSS during those same years<sup>7,8</sup>.

FIGURE 1



Average levels of leisure-time physical activity among New Jersey adults vary substantially by education at all age levels (Figure 2), with an estimated 41.6% (39.1%-44.1%) overall prevalence of inactivity among adults with 12 years of education or fewer, compared with an estimated 23.1% (21.2%-24.9%) overall prevalence of inactivity among adults with more than 12 years of education. Multivariable analyses using the New Jersey BRFSS data suggest that income is also positively associated with leisure-time physical activity, independent of age and education. There is no clear-cut trend in leisure-time physical activity levels evident during the three years for which data are available (Figure 3).

### Dietary Fat

Excessive intake of dietary fat - particularly saturated fat - has been identified as a major risk factor for coronary heart disease<sup>9</sup>. High intake of animal fat or red meat in

FIGURE 2

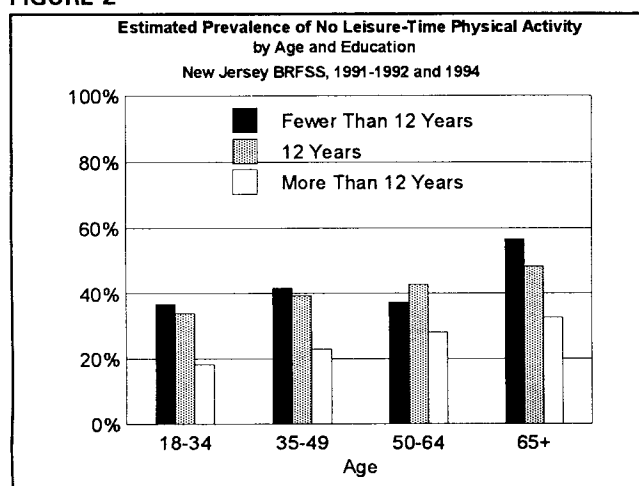


FIGURE 4

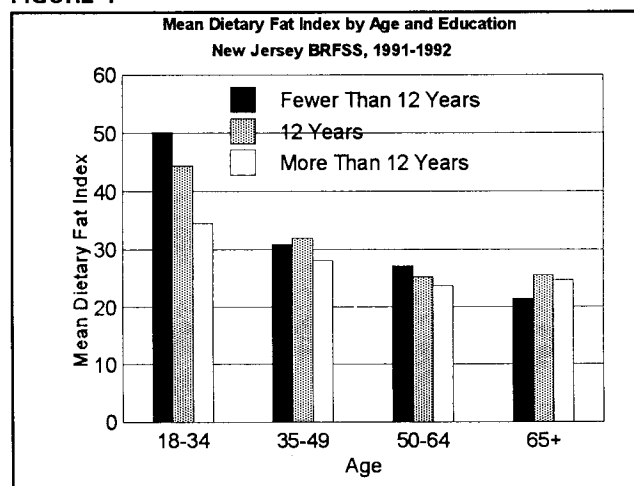
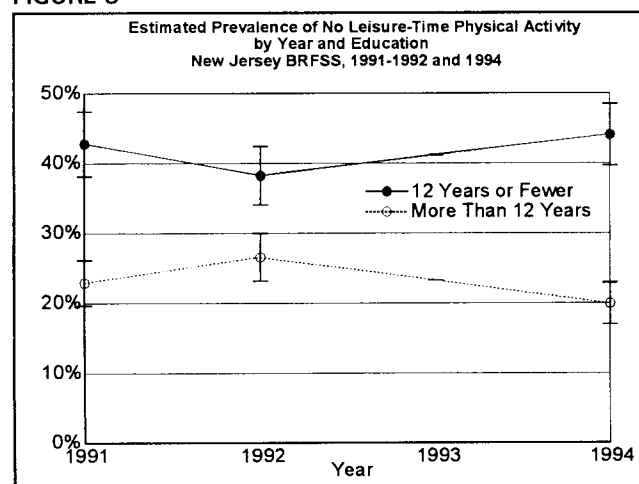


FIGURE 3



general has also been identified as a possible risk factor for certain forms of cancer<sup>10</sup>. Conversely, intake of certain unsaturated fatty acids may be protective against coronary heart disease<sup>11,12</sup> and other chronic diseases<sup>12,13</sup>. An estimated two-thirds of the United States population aged 2 years and over currently consume more than 30% of calories in the form of fat and 10% of calories in the form of saturated fat<sup>14</sup>.

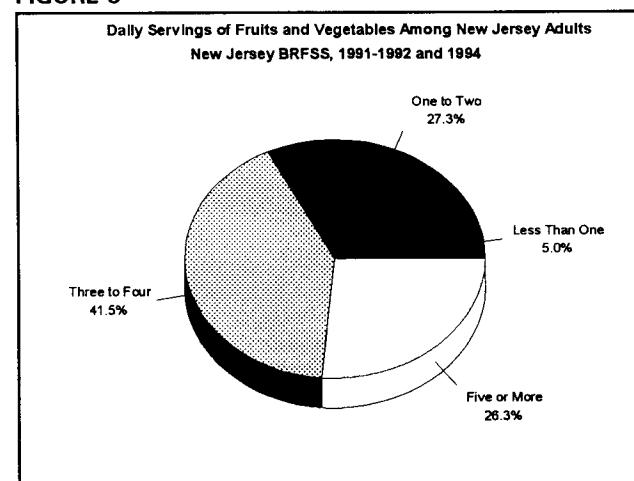
The dietary fat module included in the New Jersey BRFSS in 1991 and 1992 consists of questions about the intake of 13 high-fat (primarily meat and dairy) foods. The responses to these questions have been summarized into an index which correlates moderately well with more extensive measures of fat intake<sup>15</sup>. The intake of dietary fat as measured by this index is inversely associated to some extent with both age and education level (Figure 4). After adjusting for age and education levels, intake of dietary fat as measured by this index appears to be somewhat lower among both women and men in New Jersey, as compared with other states (CDC, unpublished data).

### Fruit and Vegetable Intake

Higher intakes of fruits and vegetables are associated with a decreased risk for some types of cancer, and may have a protective effect against coronary heart disease which is independent of their potential role in displacing high-fat foods<sup>9</sup>. An index of fruit and vegetable intake corresponding to Healthy People 2000 Objective 2.6 has been included in the New Jersey BRFSS every year except 1993. Estimates of fruit and vegetable intake from the BRFSS have been shown to compare favorably with similar data from more in-depth interviews<sup>16</sup>.

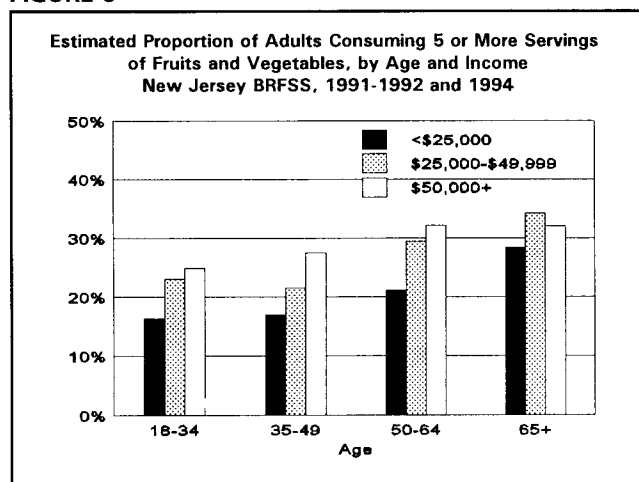
During the years 1991-1992 and 1994, an estimated 26.3% (24.8%-27.8%) of New Jersey adults, on average, had five or more servings of fruit and vegetables per day, according to the BRFSS (Figure 5). This figure is somewhat higher than the median value reported for all

FIGURE 5



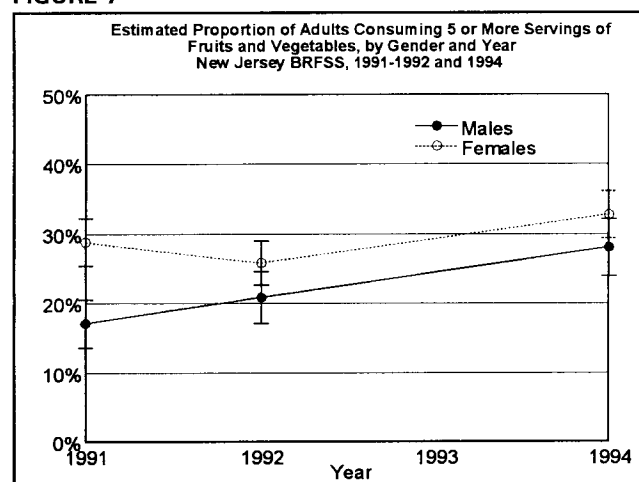
participating states (22.0%) in 1994<sup>8</sup>. However, fruit and vegetable intake in New Jersey varies to some extent with

**FIGURE 6**



age and income (Figure 6). Overall, the estimated prevalence of consuming an average of 5 or more servings of fruits and vegetables per day is 21.4% (18.5%-24.3%) among adults with annual household incomes of less than \$25,000, compared with 27.9% (24.9%-30.8%) among those with household incomes of \$50,000 or more. Multivariable analyses indicate that fruit and vegetable intakes are also lower in general among males than females, and among adults with lesser education levels, independent of age and income. There is a suggestion from the New Jersey BRFSS that fruit and vegetable intake may have increased over this time period (Figure 7).

**FIGURE 7**



#### Dietary Calcium

Adequate calcium intake is known to be essential to promote and maintain skeletal health and minimize the risk of debilitating fractures late in life. Recent guidelines emphasize a high calcium intake (1.0-1.5 grams per day) throughout adulthood<sup>17</sup>. Although there is some disagreement regarding preferred sources of this essential nutrient among adults<sup>18</sup>, current dietary objectives for the nation include the intake of at least three calcium-rich foods per day for those aged 18-

24 and the intake of at least two calcium-rich foods per day for (non-pregnant) adults aged 25 and over<sup>6</sup>. Since 1993, the New Jersey BRFSS questionnaire has included questions about calcium supplement use and consumption of milk and yogurt among women.

Based on data from a special 1993 regional BRFSS survey, an estimated 36.8% (35.0%-38.6%) of New Jersey women use pills of some form containing calcium. Usage varies substantially by age, however, so that only 25.4% (19.9%-30.5%) of women aged 18-24 were estimated to be ingesting supplementary calcium, compared with 38.3% (36.4%-40.1%) of women aged 25 and over. Multivariable results also suggest that usage increases with education level, and is higher among women who have health insurance than among those who do not.

Among women who do not use calcium supplements, the mean intake of milk or yogurt was estimated to be only about 1.2 (1.2-1.3) servings per day. Only an estimated 34.7% (26.7%-42.7%) of women aged 18-24 and 26.7% (24.4%-28.9%) of women aged 25 and over consume an average of 2 or more servings of milk or yogurt per day, according to these data. Intake was seen to increase substantially with education level, however, independent of age.

#### Weight Control

As discussed in a previous report<sup>19</sup>, obesity is a growing health problem which is now estimated to affect nearly one in four New Jersey adults. Among (non-pregnant) obese adults in New Jersey (as defined by body mass index), roughly one-third (28.4%-40.7%) are trying to control their weight by reducing their intake of calories and/or fat, roughly 2% (0.4%-4.3%) are using physical activity alone, and roughly one-third (29.1%-40.6%) are using both approaches. Roughly one-fourth (19.7%-30.7%) of obese adults, however, are using neither form of weight control, according to responses from the 1994 New Jersey BRFSS.

Based on another question added to the New Jersey BRFSS in 1994, only about one-third (26.3%-38.2%) of obese individuals have been advised by a physician to lose weight. Of these, approximately two-thirds (57.8%-81.9%) report they are actually trying to lose weight, while among those who weren't advised to do so, approximately 60% (52.1%-67.4%) report making the attempt. The estimated proportion of obese individuals who are eating fewer calories and/or less fat as well as exercising to lose or maintain weight is not grossly different from the mean reported for all participating BRFSS states in 1994<sup>8</sup>.

\*Numbers in parentheses represent approximate 95% confidence intervals for the underlying population-based statistics, taking into account the random error introduced by sampling. These confidence intervals were calculated from variance estimates generated by the statistical software package SUDAAN, used for surveys such as the BRFSS which incorporate complex sampling designs<sup>20</sup>.

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